

AMENDMENTS TO THE CLAIMS

Please add new claims 69-97. Please cancel claims 1-68. The claims after amendments are as follows:

1 – 68. (canceled)

69. (new) A catheter for delivering an aerosol of medicine to a patient comprising:

a catheter shaft having a proximal end and a distal end, the distal end of the catheter shaft forming a j-shape and curving away from a longitudinal axis of the catheter shaft;

a lumen extending through the catheter shaft and adapted at a proximal end for receiving a medicine in a liquid form and communicating at the distal end with a distal medicine orifice from which the medicine can be discharged in a direction toward the proximal end of the catheter shaft; and

means for nebulizing the medicine discharged at the distal orifice into an aerosol plume of particles of the medicine.

70. (new) The catheter of claim 69, wherein the nebulizing means comprises at least one additional lumen, the at least one additional lumen configured to carry a gas and communicating with a distal gas orifice aligned to cooperate with the distal medicine orifice to generate the plume of aerosolized particles of medicine.

71. (new) The catheter of claim 69, wherein the j-shape formed at the distal end of the catheter shaft is configured to deliver the aerosol plume of particles toward tissue walls in a patient when the catheter is positioned in a patient.

72. (new) The catheter of claim 71, wherein the tissue walls comprise airway passage walls.

73. (new) The catheter of claim 69, wherein the catheter shaft is configured for placement in the patient's lungs.

74. (new) The catheter of claim 69, wherein at least a portion of the catheter is constructed of a compliant material.

75. (new) A catheter system for delivering an aerosol of medicine to a patient comprising:

- a catheter shaft having a proximal end and a distal end, the distal end having a j-shape such that the distal end curves away from a longitudinal axis of the catheter shaft and substantially towards the proximal end of the catheter shaft;

- a plurality of lumens extending through the catheter shaft, wherein a first of the plurality of lumens comprises a liquid lumen and a second of the plurality of lumens comprises a gas lumen;

- a distal liquid orifice communicating with the liquid lumen; and

- a distal gas orifice communicating with the gas lumen, wherein the distal gas orifice and the distal liquid orifice are aligned at the j-shape distal end of the catheter shaft to generate an aerosol in a direction towards the proximal end of the catheter shaft;

- wherein the liquid lumen is adapted for communicating at the proximal end with a port for receiving a medicine in a liquid form and communicating at the distal end with a distal orifice from which the medicine can be discharged;

- a flow control apparatus connected to the port, said flow control apparatus comprising:

- a flow line communicating with the port, said flow line occupied by the medicine; and

- a valve associated with the flow line to cause pulsed delivery of medicine through the flow line.

76. (new) The catheter system of claim 75 wherein the valve is located in the liquid lumen.

77. (new) The catheter system of claim 75 wherein the valve is actuated from the proximal end of the catheter.

78. (new) The catheter system of claim 75, wherein the catheter shaft is configured for placement in the patient's lungs.

79. (new) The catheter system of claim 75, wherein at least a portion of the catheter is constructed of a compliant material.

80. (new) A catheter system for delivering an aerosol to a patient comprising:
a catheter shaft having a proximal end and a distal end, the distal end for insertion into the patient;
a gas lumen extending through the catheter shaft;
a distal gas orifice communicating with the gas lumen, the distal gas orifice located at the distal end of said nebulization catheter;
a liquid lumen extending along at least a portion of the catheter shaft;
a distal liquid orifice communicating with the liquid lumen; and
wherein the distal gas orifice and the distal liquid orifice are aligned to generate a discharge of nebulized liquid in a direction toward the proximal end of the catheter shaft.

81. (new) The catheter system of claim 80, further comprising a second gas lumen extending through the catheter shaft and communicating with a second distal gas orifice, the second distal gas orifice oriented in a manner to deliver a gas to slow the discharge of nebulized liquid.

82. (new) The catheter system of claim 81, wherein the second distal gas orifice is oriented in a direction substantially parallel to a longitudinal axis of the catheter shaft.

83. (new) The catheter system of claim 81, wherein the second distal gas orifice faces the distal gas orifice.

84. (new) The catheter system of claim 81, wherein the second distal gas orifice faces the distal liquid orifice.

85. (new) The catheter system of claim 80, further comprising an endotracheal tube, wherein at least a portion of the catheter shaft is positioned within the endotracheal tube.

86. (new) The catheter system of Claim 80 further comprising:
graduated markings on the catheter shaft.

87. (new) The catheter system of Claim 80 further comprising:
luer lock connectors on proximal ports communicating with the gas lumen and the liquid lumen.

88. (new) The catheter system of Claim 80 further comprising:
a stripe on the catheter shaft.

89. (new) The catheter system of claim 80, wherein the catheter shaft is configured for placement in the patient's lungs.

90. (new) The catheter system of claim 80, wherein at least a portion of the catheter is constructed of a compliant material.

91. (New) A catheter for delivering an aerosol of medicine to a patient comprising:

a catheter shaft having a proximal end and a distal end;

a liquid lumen located in the shaft and adapted for conveying a medicine in liquid form;

a gas lumen located adjacent the liquid lumen and adapted for conveying a gas;

a distal liquid orifice communicating with the liquid lumen; and

a distal gas orifice communicating with the gas lumen, wherein the distal gas orifice and the distal liquid orifice are aligned to generate a discharge of nebulized liquid;

wherein the distal end of the catheter shaft is maintained in a j-shape orientation having the distal liquid orifice and the distal gas orifice j-shape pointing

substantially towards a proximal end of the catheter, the j-shaped orientation maintained by a support member attached to the catheter shaft.

92. (new) The catheter of claim 91, wherein the catheter shaft comprises an extruded polymer tubing.

93. (new) The catheter of claim 91 wherein the support member comprises a tether.

94. (new) The catheter of claim 92 wherein a first end of the tether is attached to the catheter shaft at a first attachment point adjacent the distal end and a second end of the tether is attached to the catheter shaft at a position along the catheter shaft between the proximal end and the first attachment point.

95. (new) The catheter of claim 92, wherein the tether comprises a wire.

96. (new) The catheter of claim 91, wherein the catheter shaft is configured for placement in the patient's lungs.

97. (new) The catheter of claim 91, wherein at least a portion of the catheter is constructed of a compliant material.